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10/822,794	04/09/2004	Derrick L. Garmire	POU920030161US1	2822

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EXAMINER

KANGARLOO, RAMTIN

ART UNIT	PAPER NUMBER
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2609

MAIL DATE	DELIVERY MODE
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08/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/822,794

Applicant(s)

GARMIRE ET AL.

Examiner

Ramtin Kangarloo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/09/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/9/2004.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 13, 25, 28, 29 and 37 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 10, 19, 23, 24 and 30-32 of copending (U.S. patent Application No. 10822795) Although the conflicting claims are not identical, they are not patentably distinct from each other because both the claims of instant application and the claims of parent application No. 10822795 are almost the same in scope. Omission of an element and its function in a combination in an obvious expedient if the remaining elements perform the same function as before. In re KARLSON (CCPA) 136 USPQ 184 (1963).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Valizadeh (5,838,994).

Regarding **Claim 1**, Valizadeh discloses a packet flow control method for a switching node of a data transfer network, said method comprising: actively managing space allocations in a central queue (fig.4) for a plurality of ports of a switching node (fig.2, 20) of a data transfer network (fig.1); and wherein the actively managing is based on a variable amount of unused space available in the central queue (See col. 1, Lines 56 – 67).

Regarding **Claim 2**, Valizadeh discloses the method of claim 1, wherein the unused space available in the central queue comprises vacated allocated (reserved for allocation) space and unallocated (free for allocation) space available in the central queue, and the actively managing further comprises separately tracking the vacated allocated space and the unallocated space currently available in the central queue (See col. 2, Lines 38 - 44). (It is noted that Valizadeh teaches a method for managing memory buffer and controlling the available space in the memory; hence, it is inherently separate tracking the space in the memory).

Regarding **Claim 3**, Valizadeh discloses the method of claim 1, wherein the unused space available in the central queue comprises unallocated space currently available in the central queue, wherein the actively managing further comprises offering a quantity of unallocated space currently available in the central queue to the plurality of ports according to a defined distribution rule (See col. 2, Lines 53 – 67).

Regarding **Claim 4**, Valizadeh discloses the method of claim 1, wherein the unused space available in the central queue comprises vacated allocated space, and wherein the actively managing further comprises offering the vacated allocated space to a port to which the vacated allocated space is currently assigned (See col. 2, Lines 53 – 67).

Regarding **Claim 5**, Valizadeh discloses the method of claim 1, wherein the actively managing (dynamically) further comprises allocating, by a port credit manager (queuing engine), an offered space to at least one virtual lane of a port based on a space need of the at least one virtual lane (effective queue), The offered space comprising a quantity (set of flags) of unused space in the central queue (See col. 3, Lines 6-14).

Regarding **Claim 6**, Valizadeh discloses the method of claim 5, wherein the quantity of unused space comprises at least one of a vacated allocated space currently assigned to

the port (See col. 5, Lines 32 - 33) and a quantity of unallocated space available in the central queue (See col. 9, Lines 1– 17).

Regarding **Claim 7**, Valizadeh discloses the method of claim 5, wherein the allocating further comprises determining the space need based on an amount of central-queue (fig.6) space borrowed by the at least one virtual lane, wherein the amount of central-queue space borrowed comprises an amount of space by which a space allocation in the central queue allotted to the at least one virtual lane exceeds a target allocation (See col. 6, Lines 26 - 29).

Regarding **Claim 8**, Valizadeh discloses the method of claim 5, wherein the allocating further comprises determining the space need based on an amount of unused space remaining in a space allocation in the central queue (fig.6) allotted to the at least one virtual lane, wherein the amount of unused space remaining comprises an amount allotted to the at least one virtual lane, but currently not used to store a received data packet (See col. 5, Lines 32 – 35).

Regarding **Claim 9**, Valizadeh discloses the method of claim 5, wherein the allocating further comprises: (i) reckoning (calculating) an amount of central-queue space borrowed by the at least one virtual lane, wherein the amount of central-queue space borrowed comprises an amount of space by which a space allocation in the central

queue allotted to the at least one virtual lane exceeds a target allocation; (See col. 6, Lines 26 - 29) and (ii) reckoning an amount of unused space remaining in the space allocation in the central queue allotted to the at least one virtual lane, wherein the amount of unused space remaining comprises an amount allotted to the at least one virtual lane, but currently not used to store a received data packet (See col. 5, Lines 46 – 51).

Regarding **Claim 10**, Valizadeh discloses the method of claim 9, wherein the allocating further comprises reducing the amount of central-queue space borrowed and, with a remaining offered space, if any, increasing the amount of unused space remaining in the space allocation in the central queue allotted to the at least one virtual lane up to a desired amount, wherein the remaining offered space comprises the offered space not allotted by the input port credit manager for the reducing (See col. 6, Lines 38 - 42).

Regarding **Claim 11**, Valizadeh discloses the method of claim 5, wherein the actively managing further comprises returning a balance of the offered space not allotted by the allocating back to the central queue (See col. 6, Lines 49 – 52).

Regarding **Claim 12**, Valizadeh discloses The method of claim 11, wherein the actively managing further comprises adding the balance of the offered space returned by the

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port credit manager to the unallocated space available in the central queue (See col. 6, Lines 49 – 52).

Regarding **Claim 13**, Valizadeh discloses a packet flow control system for a switching node of a data transfer network, said system comprising: means for actively managing space allocations in a central queue (fig.4) for a plurality of ports of a switching node (fig.2, 20) of a data transfer network (fig.1); and wherein the actively managing is based on a variable amount of unused space available in the central queue (See col. 5, Lines 23 – 31).

Regarding **Claim 14**, Valizadeh discloses the system of claim 13, wherein the unused space available in the central queue comprises vacated allocated (reserved for allocation) space and unallocated (free for allocation) space available in the central queue, and the means for actively managing further comprises means for separately tracking the vacated allocated space and the unallocated space currently available in the central queue (See col. 9, Lines 1 – 17). (It is noted that Valizadeh teaches a method for managing memory buffer and controlling the available space in the memory; hence, it is inherently separate tracking the space in the memory).

Regarding **Claim 15**, Valizadeh discloses the system of claim 13 wherein the unused space available in the central queue comprises unallocated space currently available in the central queue (See col. 2, Lines 58 – 63). wherein the means for actively managing further comprises means for offering a quantity of unallocated space currently available in the central queue to the plurality of ports according to a defined distribution rule (See col. 5, Lines 42 – 50).

Regarding **Claim 16**, Valizadeh discloses the system of claim 13, wherein the unused space available in the central queue comprises vacated allocated space, (See col. 2, Lines 64 – 67). and wherein the means for actively managing further comprises means for offering the vacated allocated space to a port to which the vacated allocated space is currently assigned (See col. 5, Lines 32-36).

Regarding **Claim 17**, Valizadeh discloses the system of claim 13, wherein the means for actively managing (dynamically) further comprises means for allocating an offered space to at least one virtual lane (effective queue), of a port based on a space need of

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the at least one virtual lane, the offered space comprising a quantity (set of flags) of unused space in the central queue (See col. 4, Lines 37-40).

Regarding **Claim 18**, Valizadeh discloses the system of claim 17, wherein the quantity of unused space comprises at least one of a vacated allocated space currently assigned to the port and a quantity of unallocated space available in the central queue (See col. 9, Lines 1-19).

Regarding **Claim 19**, Valizadeh discloses the system of claim 17, wherein the means for allocating further comprises means for determining the space need based on an amount of central-queue (fig.6) space borrowed by the at least one virtual lane (effective queue), wherein the amount of central-queue space borrowed comprises an amount of space by which a space allocation in the central queue allotted to the at least one virtual lane exceeds a target allocation (See col. 6, Lines 26-29).

Regarding **Claim 20**, Valizadeh discloses the system of claim 17, wherein the means for allocating further comprises means for determining the space need based on an amount of unused space remaining in a space allocation in the central queue (fig.6) allotted to the at least one virtual lane, wherein the amount of unused space remaining

comprises an amount allotted to the at least one virtual lane, but currently not used to store a received data packet (See col. 5, Lines 32-36).

Regarding **Claim 21**, Valizadeh discloses the system of claim 17, wherein the means for allocating further comprises: (i) means for reckoning (calculation) an amount of central-queue space borrowed by the at least one virtual lane, wherein the amount of central-queue space borrowed comprises an amount of space by which a space allocation in the central queue allotted to the at least one virtual lane exceeds a target allocation; and (ii) means for reckoning an amount of unused space remaining in the space allocation in the central queue allotted to the at least one virtual lane, wherein the amount of unused space remaining comprises an amount allotted to the at least one virtual lane, but currently not used to store a received data packet (See col. 5, Lines 45-52).

Regarding **Claim 22**, Valizadeh discloses the system of claim 21, wherein the means for allocating further comprises: means for reducing the amount of central-queue space borrowed; and means for increasing the amount of unused space remaining in the space allocation in the central queue allotted to the at least one virtual lane up to a desired amount with a remaining offered space, if any, wherein the remaining offered space comprises the offered space not allotted by the means for reducing to reduce the amount of central-queue space borrowed (See col. 6, Lines 26-29).

Regarding **Claim 23**, Valizadeh discloses the system of claim 17, wherein the means for actively managing further comprises means for returning a balance of the offered space not allotted by means for the allocating back to the central queue (See col. 6, Lines 49-52).

Regarding **Claim 24**, Valizadeh discloses the system of claim 23, wherein the means for actively managing further comprises means for adding the balance of the offered space returned by the means for returning to the unallocated space available in the central queue (See col. 6, Lines 49-52).

Regarding **Claim 25**, Valizadeh discloses a queue manager for a switching node of a data transfer network, said queue manager comprising: central queue control logic for a switching node for tracking a variable amount of unused space in a central queue of the switching node and offering a quantity of the unused space to a plurality of ports of the switching node; and a port credit manager for allocating an offered space to at least one virtual lane of a port of the plurality of ports, the offered space comprising the quantity of the unused space in the central queue offered by said central queue control logic (See col. 4, Lines 26-35).

Regarding **Claim 26**, Valizadeh discloses the queue manager of claim 25, wherein the unused space in the central queue comprises vacated allocated space and unallocated space available in the central queue; the central queue control logic separately tracks the vacated allocated space and the unallocated space; and the port credit manager further comprises a plurality of virtual lane credit calculators, each of the virtual lane calculators: (i) reckoning (calculation) an amount of central-queue space borrowed by a virtual lane of the port, wherein the amount of central-queue space borrowed comprises an amount of space by which a space allocation in the central queue allotted to the virtual lane exceeds a target allocation; (See col. 6, Lines 26 - 29) and (ii) reckoning an amount of unused space remaining in the space allocation in the central queue allotted to the virtual lane, wherein the amount of unused space remaining comprises an amount allotted to the virtual lane, but currently not used to store a received data packet (See col. 5, Lines 46-51).

Regarding **Claim 27**, Valizadeh discloses the queue manager of claim 26, wherein each of the virtual lane calculators determines an amount of surplus space from the offered space to return to the unallocated space available in a central queue (See col. 6, Lines 49-52).

Regarding **Claim 28**, Valizadeh discloses a switching node for a data transfer network, said switching node comprising: a plurality of data ports; a central queue for buffering data packets received by said plurality of data ports; and a packet flow controller, wherein said packet flow controller actively manages space allocations in said central queue for said plurality of ports based on a variable amount of unused space available in said central queue (See col. 1, Lines 53-68).

Regarding **Claim 29**, Valizadeh discloses at least one program storage device readable by a machine embodying at least one program of instructions executable by the machine to perform a packet flow control method for a switching node of a data transfer network (fig.1), said method comprising: actively managing space allocations in a central queue (fig.4) for a plurality of ports of a switching node (fig.2, 20) of a data transfer network; and wherein the actively managing is based on a variable amount of unused space available in the central queue (See col. 5, Lines 23-32).

Regarding **Claim 30**, Valizadeh discloses the at least one program storage device of claim 29, wherein the unused space available in the central queue comprises vacated allocated space (reserved for allocation) and unallocated space (free for allocation) available in the central queue, and the actively managing further comprises separately tracking the vacated allocated space and the unallocated space currently available in

the central queue (See col. 9, Lines 1-17). (It is noted that Valizadeh teaches a method for managing memory buffer and controlling the available space in the memory; hence, it is inherently separate tracking the space in the memory).

Regarding **Claim 31**, Valizadeh discloses the at least one program storage device of claim 29, wherein the unused space available in the central queue comprises unallocated space currently available in the central queue, wherein the actively managing further comprises offering a quantity of unallocated space currently available in the central queue to the plurality of ports according to a defined distribution rule (See col. 5, Lines 41-45).

Regarding **Claim 32**, Valizadeh discloses the at least one program storage device of claim 29, wherein the unused space available in the central queue comprises vacated allocated (See col. 2, Lines 58-62) space, and wherein the actively managing further comprises offering the vacated allocated space to a port to which the vacated allocated space is currently assigned (See col. 5, Lines 32-36).

Regarding **Claim 33**, Valizadeh discloses the at least one program storage device of claim 29, wherein the actively managing (dynamically) further comprises allocating, by a

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port credit manager (queuing engine), an offered space to at least one virtual lane of a port based on a space need of the at least one virtual lane (effective queue), the offered space comprising a quantity of unused space in the central queue (See col. 4, Lines 38-40).

Regarding **Claim 34**, Valizadeh discloses the at least one program storage device of claim 33, wherein the quantity of unused space comprises at least one of a vacated allocated space currently assigned to the port and a quantity of unallocated space available in the central queue (See col. 9, Lines 1-19).

Regarding **Claim 35**, Valizadeh discloses the at least one program storage device of claim 33, wherein the allocating further comprises determining the space need based on an amount of central-queue space borrowed by the at least one virtual lane, wherein the amount of central-queue space borrowed comprises an amount of space by which a space allocation in the central queue allotted to the at least one virtual lane exceeds a target allocation (See col. 6, Lines 26-29).

Regarding **Claim 36**, Valizadeh discloses the at least one program storage device of claim 33, wherein the allocating further comprises determining the space need based on an amount of unused space remaining in a space allocation in the central queue allotted to the at least one virtual lane, wherein the amount of unused space remaining

comprises an amount allotted to the at least one virtual lane, but currently not used to store a received data packet (See col. 5, Lines 32-36).

Regarding **Claim 37**, Valizadeh discloses the at least one program storage device of claim 33, wherein the actively managing further comprises returning a balance of the offered space not allotted by the allocating back to the central queue, and the allocating further comprises: (i) reckoning an amount of central-queue space borrowed by the at least one virtual lane, wherein the amount of central-queue space borrowed comprises an amount of space by which a space allocation in the central queue allotted to the at least one virtual lane exceeds a target allocation; (See col. 6, Lines 26 - 29) and (ii) reckoning an amount of unused space remaining in the space allocation in the central queue allotted to the at least one virtual lane, wherein the amount of unused space remaining comprises an amount allotted to the at least one virtual lane, but currently not used to store a received data packet (See col. 5, Lines 46-51).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Syuji Takada (US Patent No. 7,075,938) teaches communication buffer memory control.

Masami Takahashi (US Patent No. 6,977,941) teaches shared buffer type variable length packet switch.

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Peter Heiner (US Patent No. 5,805,589) Teaches central shared queue based time multiplexed packet switch with deadlock avoidance.

Any response to this Office Action should be **faxed** to (571) 273-8300 or **Mailed** to :

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Hand-delivered responses should be brought to

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401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramtin Kangarloo whose telephone number is (571) 270-3452. The examiner can normally be reached on Monday to Thursday 7:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Tieu can be reached on (571) 272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramtin Kangarloo

Examiner Art Unit 2616

July 11, 2007


BENNY TIEU
SPE/TRAINER